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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------------|------------------|
| 09/639,684 | 08/15/2000 | Dennis H. Runnoe | 14374.14 | 4147 |
| 7590 | 08/10/2004 | | EXAMINER THOMAS, COURTNEY D | |
| Eric L Maschoff Workman Nydegger & Seeley 1000 Eagle Gate Tower 60 East South Temple Salt Lake City, UT 84111 | | | ART UNIT 2882 | PAPER NUMBER |
| DATE MAILED: 08/10/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|---|
| Office Action Summary | Application No. 09/639,684 | Applicant(s) RUNNOE, DENNIS H. | |
| | Examiner Courtney Thomas | Art Unit 2882 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/14/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8 and 57-93 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8 and 57-93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/14/04 has been entered.

Allowable Subject Matter

2. The indicated allowability of claim 8 is withdrawn in view of the newly discovered reference(s) to Anderson (U.S. Patent 4,788,705). Rejections based on the newly cited reference(s) follow.

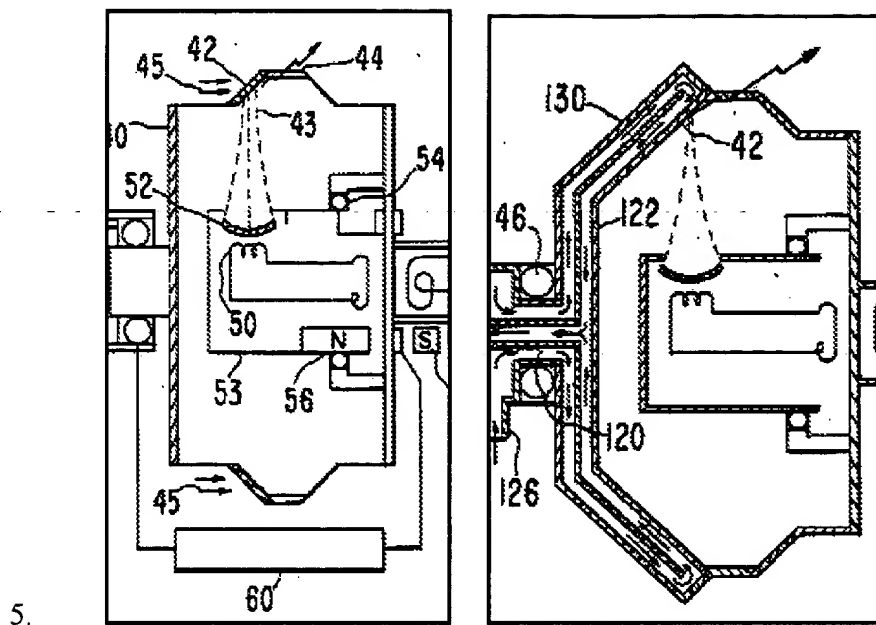
Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 8, 57-61, 63-73, 75-90 and 92-93 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (U.S. Patent 4,788,705).



Figures 2 and 5 respectively – U.S. Patent 4,788,705 to Anderson

6. As per claims 8, 57-61, 63-73, 75-90 and 92-93, Anderson discloses an X-ray tube having a vacuum enclosure and disposed therein a target anode (42) with a target surface and an integral cathode, spaced apart from the target surface of the target anode, the integral cathode comprising: an emitter (52) capable of discharging electrons (43), the emitter having a predetermined geometrical configuration oriented to cause some of the discharged electrons to converge to a focal spot; wherein the predetermined geometrical configuration provides an emitter having a cross section substantially in the shape of an arc so that a concave side of the emitter is directed toward the target surface of a target anode; and a support cartridge (53), providing structural support for the emitter; and wherein the emitter is substantially confined within the support cartridge and defines at least one cutout; the arc shape of the emitter comprises a substantially circular arc and the emitter comprises a single piece of material/refractory metal and comprises a plurality of subsidiary emitting portions; the support cartridge serves to substantially maintain the emitter in the arc shape and comprises an electrically

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conductive portion and non-electrically conductive portion (see Figs. 2 and 5 above; Abstract and respective portions of the specification).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 62, 74 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (U.S. Patent 4,788,705) in view of Bewlay (U.S. Patent 6,066,019).

9. **As per claims 62, 74 and 91**, Anderson discloses an apparatus as recited in independent claims 8, 67, 78 and 84. Anderson however, does not explicitly disclose an emitter doped with a dopant.

10. Bewlay teaches that an emitter (or cathode) doped with a dopant displays improved characteristics such as structural stability and focusing characteristics at high operational temperatures required for electron emission and x-ray generation (column 1, lines 29-44).

11. It would have been obvious to one of ordinary skill in the art to modify the emitter of Anderson such that it incorporated a dopant. One would have been motivated to make such a modification for the purpose of improving emitter characteristics including thermal resistivity and electron emission, in order to enhance X-ray generation as suggested by Bewlay (column 1, lines 29-44).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CT
Courtney Thomas


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER